

The effect of natural products like ginger, garlic, blueberries, turmeric, grapefruit and ashwagandha (herb) on the growth of triple negative breast cancer cells

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Breast cancer is the leading cause of death in women worldwide. 1 in 8 women are diagnosed with breast cancer, 15 to 20 % of which are diagnosed with TNBC, triple negative breast cancer (cancer cells that lack three proteins estrogen receptor, progesterone receptor and Her-2 which are known to fuel the breast cancer cells). TNBC is a very aggressive form of breast cancer with high chances of relapse. It is difficult to treat TNBC as targeted therapy is unavailable. Chemotherapy is often not the best option because it cannot distinguish between healthy fast dividing cells and cancer cells. Patients receiving chemotherapy get very sick and die of the side effects of chemotherapy rather than the cancer itself. In this project we have tried to explore some natural products like ginger, garlic, blueberries, turmeric, grapefruit and ashwagandha (herb) for the treatment of TNBC as natural products do not have side effects and are well tolerated. Two TNBC cell lines were used for this work, MDA231 and MDA468. We have treated the cancer cells with natural products at different concentrations and checked the cell proliferation by MTT assay. We have got promising results with ashwagandha (herb), ginger, garlic, grapefruit and turmeric. They are effective in killing breast cancer cells at different doses. We are in the process of studying their combined effects by MTT assay and the mechanisms of cell death by western blotting currently.

Key words: Triple Negative Breast Cancer, Natural Products, Blueberries, Ginger, Garlic, Turmeric, Grapefruit, Ashwagandha, cell lines